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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,750	05/23/2001	Yoshihiko Gotoh	Ishii Case 17	9121

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EXAMINER
LOPEZ, CARLOS N

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/863,750	GOTOH ET AL.	
	Examiner	Art Unit	
	Carlos Lopez	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

After further consideration the previously indicated allowability of original claim 15 for which claim 20 encompasses is being withdrawn. A new rejection of the pending claims follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayce et al (US 6,763,682) or over Sayce et al (WO 00/03955), the published international application from which US 6,763,682 claims priority in further view of Komine et al (US 6,649,268). The US patent will only be referred for citation purposes. Sayce discloses a method of making glass ingot from synthetic silica. Sayce's process comprises providing a rotatable furnace 51 having a rotatating crucible 55 as shown in figure 4 (Also note Col. 5, lines 46ff and Col.6, lines 1-9) and having a feeder, deemed as synthesis burners 55, at the top portion of furnace 51. The claimed dropping of silica powder around the center of the furnace bed is deemed as the powder dropping from the silica powder synthesis burners 53 onto the furnace bed formed by crucible 55. As for the claimed fusing of the silica powder onto the furnace, figure 4 shows the glass powder fused and flowing from shaping orifice 60. The claimed deposition of the fused silica at the center of the furnace bed is deemed as the silica being deposited by central

burner 53 on the center of the furnace as shown in figure 4. The claimed step of extending the fused silica deposit outwardly from the center of the furnace bed by heating and rotating the furnace is deemed as the flow of fused silica powder from orifice 60 located at the center of the furnace, as shown in figure 4, for which burners 53 provide the necessary heat to cause the fused silica glass to extend outwardly and flow from the furnace orifice 60.

Sayce is silent disclosing the hydrogen to oxygen gas ratio being supplied to burners 53 and 33. Komine in bridging paragraph of Col. 7-8 notes conventional methods using silicone tetrachloride silica precursors use extra hydrogen in order to enhance the hydrogen concentration of the obtained silica and notes that using a oxygen to hydrogen ratio of .53 or more (hydrogen to oxygen ratio is equal to or less than 1.88) provides a problem free method because the reaction of the silicone tetrachloride silica precursor is dominated by hydrolytic reaction, hence having a high hydrogen concentration is advantageous.

However, if one were to use polysiloxane silica precursors, Komine suggest using an oxygen to hydrogen supply of .48 or more (hydrogen to oxygen ratio is equal to or less than 2.08) because the reaction of the polysiloxane silica precursors is dominated by an oxidizing reaction (See Col.8 lines 45ff).

Hence, at the time the invention was made with would have been obvious to a person of ordinary skill in the art to have use the hydrogen/oxygen gas ratio being supplied to the burner as taught by Komine with Sayce method in order to enhance the

hydrogen concentration of the obtained silica, provide a problem free method an assure that there is no un-reacted silicone tetrachloride silica precursor.

It is noted that while Komine teaches of a ratio of 2.08 a difference of .02 from that instantly claimed would not result in unexpected results. A person of ordinary skill in the art using 2.1 instead of 2.08 as taught by Komine would provide a silica glass with reasonable expectation of success and no unexpected results since it would not result in a significant increase concentration of formyl radicals (See Komine col. 8, lines 60ff).

As for claims 23-24, Sayce discloses the formation of a circular cylindrical ingot, which reads on the claimed column or solid round bar ingot (Col. 6, line 26).

As for claim 25, Sayce discloses the formation of a plate shaped ingot (Col. 6, line 28).

In regards to claim 21, Sayce teaches that the furnace bed comprised of crucible 55 maybe be protected with a ceramic coating (Col. 4,lines 43ff). Sayce is silent disclosing the size and type of the ceramic particles that compromise the ceramic coating. However, Sayce notes that ceramic zirconia provides great erosion resistance at minimized levels of contamination that may contaminate the glass (Col. 6, lines 63-65). It would thus be obvious to a person of ordinary skill in the art at the time the invention was made that the size and type of the ceramic particle compromising the ceramic coating of Sayce would be of sufficient size and of heat resistance that would provide proper protection to the furnace bed from the flowing of molten glass. To a person of ordinary skill in the art in view of Sayce teaching that a ceramic coating is used to protect the furnace bed, would thus conduct routine experiments that would

determine the optimum size and type of ceramic particle that would best provide protection to the furnace bed. Moreover, a person of ordinary skill in the art would use a zirconia ceramic since it provides great erosion resistance at minimized levels of contamination as taught by Sayce. Furthermore, in using the generic term "ceramic", Sayce clearly envisages the use of ceramic zirconia.

As for claim 22, Sayce is silent in disclosing the rate of raw material, deemed as glass precursor, being fed to the furnace from burners 53 (Col. 5, lines 49ff). The rate at which the raw material is feed would depend on the desired rate of ingot glass production. Thus, claiming a rate of supplied raw material of 1.0 to 10 kg/hr would be obvious to a person of ordinary skill in the art at the time the invention was made in order to attain the desired rate at which glass ingot is produced.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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